

FOUR NEW SPECIES OF MOSSES FROM PERU

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A number of undescribed species have been found in various small collections of Peruvian bryophytes sent for determination by A. Sagastegui and F. Ayala of Trujillo, and Dana Griffin III of Florida. Three of these species are described here and a fourth is described from misdetermined material obtained on loan from New York. These species all reflect the need for further work with the bryophytes of Peru. I have come to believe that Peru has more undescribed species and more unrecognized range extensions at this time than any other country in South America. I have already added two new species to the flora in recent years (Robinson, 1967), and one species has been described by Crum (1967). The new species are from various parts of Peru, but a number, including Barbula malagana Crum, are from the coastal region which I intend to discuss more fully in another paper. It is sufficient to point out here that this coastal area and the "lomas" found there seem to have an unusually high percentage of endemic bryophyte species.

Trichostomum marginatum H. Robinson, sp. nov. (Fig. 1-4).

Planta dioica?, dense caespitosa pallide viridis, inferne sordida. Caules ca. 1 cm longi simplices vel parce ramosi. Folia caulina erecta laxe disposita, siccitate superne valde circinata, linearia ca. 3 mm longa, in apicibus cylindricis attenuata, margine integra vel minute subcrenulata erecta bi- tristratosa; nervis prope basin 80μ latis, ad extremum subulatis indistincte; cellulis basilaribus angustis elongatis $8-10\mu$ latis ad 70μ longis laevibus pellucidis, mediis et superioribus quadratis vel transverse elongatis 13μ longis $7-13\mu$ longis minute multi-papillosis. Folia perichaetialia arcte convoluta. Calyptrae cucullatae. Setae erectae ca. 2 cm longae rufescentes. Capsulae erectae anguste ovaes inoperculatae 1.5 mm longae laevissimae rufescentes; operculis longe conicis 0.7-1.0 mm longis; dentibus pallidis uniseriatis filiformibus erectis dense papillosis ad 300μ longis. Sporae ovaes $10-12\mu$ diam. asperulae.

Peru. Dept. Huanuco: Muña, on shaded bank about 7000 ft., George S. Bryan 507a (NY, holotype).

The species is distinguished from others of the genus Trichostomum by the thickened margin. The margins of the leaves are actually erect to incurved but might seem slightly recurved because of the thickening. For this reason the species might be

compared with Trichostomopsis (Robinson, 1970) which, however, has only one stereid band in the costa. The type specimen of Trichostomum marginatum was originally determined as a member of the genus Barbula subgenus Asteriscium (= Trichostomopsis).

Tortula acletoi H. Robinson, sp. nov. (Fig. 5-7).

Planta dioica?, laxe caespitosa pallide viridis. Caules 2-5 mm longi simplices vel parce ramosi. Folia caulina erecto-patentia, siccitate valde contorta, oblonga 2.0-3.5 mm longa ad 1.0 mm lata late acuta saepe breve apiculata, margine argute serrulata erecta unistratosa; nervis prope basin ca. 80 μ latis percurrentis; cellulis basilaribus elongatis ca. 25 μ latis 50-100 μ longis laevis pellucidis, margine 5-6 seriebus angustissimis; cellulis mediis et superioribus quadratis vel sexangulatis 15-20 μ diam. multipapillosis; cellulis marginalibus fere usque ad apicem in 1-2 seriebus linearibus 5-10 μ latis 50-100 μ longis. Folia perichaetia vix differentia aliquantum convoluta. Calyptrae cucullatae. Setae erectae 10-12 mm longae flavae vel rufescentes. Capsulae erectae cylindricae, 3.0-3.5 mm longae sine operculis, laeves rufescentes; operculis longe conicis ca. 1.5 mm longis; dentibus filiformibus spiralibus ad 1.5 mm longis, inferne coalitis. Sporae ovales 8-10 μ diam.

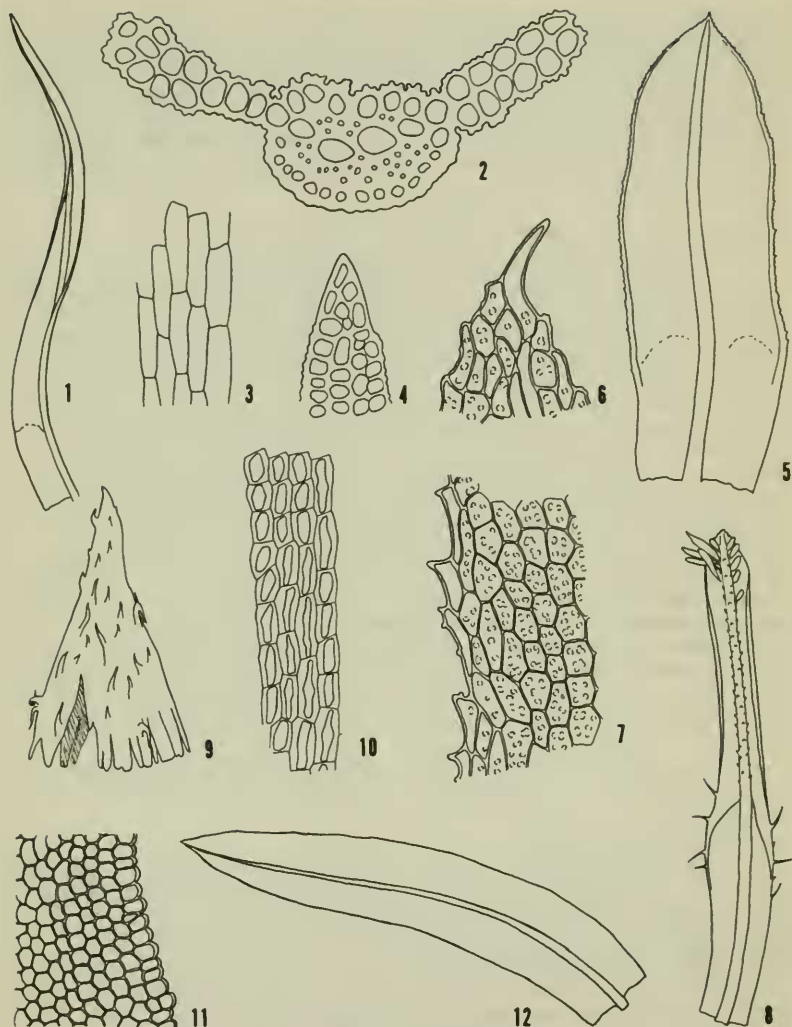
Peru. Dept. Lima: Prov. Canta, Huascay, alt. 2800 m, Borde de terreno de cultivo, Cesar Acleto 1468 (US, holotype).

The new species seems very close to Tortula denticulata (Wils.) Mitt., but the latter is distinct by the lack of papillae on the leaf cells and by minor differences in the serrulation. Few other species in the genus have a serrulate margin with elongate cells.

Syrhophodon griffinii H. Robinson, sp. nov. (Fig. 8).

Planta dioica parva luteo-viridis dense caespitosa arenicola. Caules ca. 0.5 cm alti subsimplices. Folia 2.0-2.7 mm longa ad 0.35 mm lata, siccitate erecto-patentia vel aliquantum contorta, madida erecto-patentia, lingulata breve acuta; basi vix latiora, fere ad apicem per cellulas elongatas limbata, superne serrata, medio utrinque 5-8 ciliata; ciliis singulis vel raro binis; nervis subpercurrentibus utrinque spinoso-papillosis, apice saepe propaguliferis; cellulis nediis et superioribus subquadratis 6-8 μ latis 6-10 (raro 12) μ longis, humiliter bi- vel multifido-papillosis; apicibus cancellinarum plerumque acutis, cellulis cancellinarum ad 25 μ latis et 60 μ longis. Cetera ignota.

Peru. Dept. Loreto: cerca de Zungara Cocha a 25 kms. al oeste de Iquitos, ocurriendo en suelo arenoso, Dana Griffin III and Nancy Griffin, 14 July 1965 (US, holotype; LAF, isotype).



Figs. 1-12. Peruvian mosses. 1-4. Trichostomum marginatum. 1. Leaf, $\times 25$. 2. Leaf cross-section, $\times 375$. 3. Basal leaf cells, $\times 250$. 4. Leaf tip, $\times 250$. 5-7. Tortula acletoi. 5. Leaf, $\times 25$. 6. Leaf tip, $\times 250$. 7. Cells of leaf margin, $\times 250$. 8. Syrrhopodon griffinii, leaf, $\times 25$. 9-12. Macromitrium lomasense. 9. Calyptra, $\times 12$. 10. Basal leaf cells, $\times 250$. 11. Cells of upper leaf margin, $\times 250$. 12. Leaf, $\times 20$.

The new species is very close to the recently described Syrrhopodon brevisetus Florsch. of Suriname. Most characters such as the occasional paired marginal cilia, cancellinae acute above, and both surfaces of the costa strongly spinose-papillose, are found in both species. Still, there is a distinct difference in the upper leaf cells which are subquadrate and $6-8\mu$ in diameter in S. griffinii versus elongate and $18 \times 10\mu$ in S. brevisetus.

Macromitrium lomasense H. Robinson, sp. nov. (Fig. 9-12).

Planta dioica mediocris terricola et epiphytica laxae lateque caespitosa fuscoviridis. Caulis prostrati dense ramosi; ramis erectis ad 1 cm longis. Folia sat densa, siccitate adpressa, aliquantum hamata, valde carinata, in spira curvata, madida patula, anguste oblonga vel linearia 2.0-3.0 mm longa 0.5-0.6 mm lata breviter acuta vel breve apiculata, margine integra vel minute crenulata; nervis laevibus percurrentibus, inferne ca. 40μ latis; cellulis basilaribus ca. 8μ latis 15-30 μ longis interdum unipapillosis in superficie adaxiali; parietibus longitudinalibus sat incrassatis, cellulis marginalibus inferne in seriebus uniceis laxis, mediis et superioribus rotundatis mamillosis 6-12 μ diam. non papillosis. Folia perichaetalia vix differentia vel breviora. Calyptrae mitratae ca. 15-lobatae sparse hirsutae. Setae erectae ca. 5 mm longae laeves stramineae vel inferne rufescentes. Capsulae erectae subglobosae infuscatae 2 mm longae sine operculis laeves vel obscure costatae; operculis recte aciculari-rostratis; dentibus exterioribus et interioribus inter se subconcretis obtusis luride flavidis dense papillosis. Sporae sphaericae dense papillosae 25-30 μ diam.

Peru. Dept. La Libertad: Prov. Trujillo, Cerro Chiputur, 650 m, saxicola, F. Ayala 7124 c. fr. (US, holotype; HUT, isotype).

Additional collections:

Dept. La Libertad: Prov. Trujillo, Cerro Chiputur, on rock and soil, F. Ayala 7061 c. fr., 7063a, 7064; alt. 780 m, Ayala 7114; Lomas de Virú, on trees and rocks, alt. 540-720 m, Ayala 7007, 7010, 7011, 7012, 7012, 7016, 7017, 7018, 7020, 7021, 7023, 7034, 7078, 7079, 7080.

Dept. Lima: Prov. Chancay, Lachay, km 88 carretera al norte, alt. 520 m, in Lomas, Emma Cerrate 882 c. fr.; alt. 440 m, Lomas pedregosas, Cerrate 884 c. fr.

The new species resembles some of the common members of Macromitrium, but it is rather distinct in the slightly more robust habit and the slightly but distinctly hairy calyptra. The basal leaf cells never seem to have as many papillae though this character is variable in some related species. The habit and most of the described features of M. lomasense are like the common M. punctatum (Hook. & Grev.) Brid., but the latter has

longer basal leaf cells. A number of species such as M. atroviride Williams, M. cylindricum Mitt. and M. sublaeve Mitt. seem similar to M. lomasense on the basis of descriptions, but they are smaller plants with either more glabrous or more prominently hairy calyptrae.

The species is apparently widely distributed in the Lomas along the coast of Peru.

Literature Cited

- Crum, H. 1967. Barbula malagana, a new species from Peru.
Bryologist 70: 235-237.
- Robinson, H. 1967. Six new bryophytes from South America.
Bryologist 70: 317-321.